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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,582	11/24/2003	Yakov E. Kutsovsky	02019CON	5049
7590	10/12/2006		EXAMINER	
Michelle B. Lando 157 Concord Road Billerica, MA 01821-7001			COOKE, COLLEEN P	
			ART UNIT	PAPER NUMBER
			3700	

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/720,582	KUTSOVSKY, YAKOV E.
	<b>Examiner</b> Colleen P. Cooke	<b>Art Unit</b> 1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on papers filed 7/10/06.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-30 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 10 July 2006 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

***Claim Rejections - 35 USC § 102 and 35 USC § 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 6-9, 13-16, 18, 19, and 23-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Lewis et al. (5075090).

Lewis et al. teaches a process of preparing a metal oxide by introducing a precursor which can be mixed with a carrier into a combustion zone and combusting in support of a gas to produce the particles (see abstract). Lewis et al. teaches that the preferred precursor materials are organometallic compounds wherein the R groups are alkyl, alkoxide, or mixed alkyl or alkoxide and especially those with 1-6 carbons (Column 3, lines 7-23), wherein the carrier can be kerosene or alcohols (Column 3, lines 46-57) and wherein the precursor and carrier are introduced through a nozzle to effect atomization into a combustion zone and may also be

admixed with air or pure oxygen (Column 4, lines 11-20). Lewis et al. further teaches specifically that dimethyldimethoxysilane can be used and that it can be used in conjunction with an organometallic aluminum compound (aluminum triethyl; see Example 5 in Column 7). Lewis et al. teaches that the reaction is cooled on the walls of a cooling tube (Column 5, lines 21-24 and examples).

With respect to claims 25-30, the product claimed therein appears to be met by the teachings of Lewis et al. because Lewis et al. teaches the claimed process and therefore would appear to inherently teach the product that results from that process. The product of Lewis et al. would appear to inherently meet the claims regardless of whether the specific formula disclosed is taught by the reference.

Claims 10-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lewis et al. (5075090).

Lewis et al. teaches the process of claims 1 and 9 as described above. In particular, Lewis et al. teaches that the preferred precursor materials are organometallic compounds wherein the R groups are alkyl, alkoxide, or mixed alkyl or alkoxide and especially those with 1-6 carbons (Column 3, lines 7-23), and further teaches specifically that dimethyldimethoxysilane can be used and that it can be used in conjunction with aluminum triethyl (see Example 5 in Column 7). The disclosure of Lewis et al. makes numerous references to the use of aluminum triethyl and combined with the general teachings wherein the R groups of the precursors especially have 1-6 carbons, it would appear that this teachings is sufficient to anticipate at least the claimed precursor trimethyl aluminum since trimethyl aluminum is just the lower adjacent homolog of

triethyl aluminum. However, should this teaching not be sufficient to anticipate the claims limitations, the claimed precursors would at least be obvious in view of the above cited teachings of which organometallic precursors are preferred.

Claims 1-3, 7-10, 13-14, 17-18, 20, and 25-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Rohr et al. (5340560).

Rohr et al. teaches a method of making fumed silica which includes feeding a silicon precursor material and oxygen and hydrogen into a combustion chamber (Column 2, lines 10-27). Rohr et al. teaches that the precursor may be silanes or organosilanes (Column 2, lines 27-33). Rohr et al. teaches the use of pre-heated air (Column 3, line 29) and also that air is used to quench (Column 3, lines 40-41).

With respect to claims 25-30, the product claimed therein appears to be met by the teachings of Rohr et al. because Rohr et al. teaches the claimed process and therefore would appear to inherently teach the product that results from that process. The product of Rohr et al. would appear to inherently meet the claims regardless of whether the specific formula disclosed is taught by the reference.

Claims 1-6 and 13-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Hung et al. (6887566).

Hung et al. teaches (Column 2, lines 7-53 generally) the production of metal oxide (ceria) by atomizing a ceria precursor which may be mixed with an alcohol (Column 2, lines 55-59) into a high temperature reaction zone such as a flame which can be made from a mix of fuel such as

hydrogen or methane and oxidant such as air or oxygen (Columns 3-4, lines 66-14) to form the metal oxide particles (see also Column 4, lines 47-55) and that the product can be quenched with a cooling gas, atomizing liquid, or through cooling tubes (Column 5, lines 6-10). Hung et al. also teaches that any of several well-known atomizing means can be used at various locations (Columns 3-4, lines 49-17).

### ***Response to Arguments***

Applicant's arguments filed 7/10/06 have been fully considered. The arguments made with respect to the rejection made over WO 90/10596 is persuasive and therefore this grounds of rejection is withdrawn. However, all other arguments regarding the grounds of rejection have been considered but they are not persuasive.

The applicant argues, with respect to the teachings of Lewis et al. (5075090), that separate introduction of a precursor stream and hexane stream is disclosed and that the Lewis patent therefore does not disclose “injecting the stream of the liquid feedstock into the stream of combustion gas to form a reaction mixture *such that the liquid feedstock is atomized*” as claimed. The applicant’s emphasis on the final phrase of this claimed limitation makes clear that the applicant does not believe Lewis et al. teaches that there is atomization of the liquid feedstock; however, Lewis et al. clearly states (Column 5, lines 6-9) that “the solution is atomized so as to form a fine fog or mist comprised of minute droplets of the hexane/aluminum triethyl-solvent solution” and therefore very clearly teaches that the liquid feedstock is unquestionably atomized. Since it has not been any further specified how or what way the applicant believe Lewis et al. not to meet the claimed process, the examiner must maintain the position that Lewis et al. does

indeed meet the claimed process and must further maintain that Lewis et al. teaches the product of that process as well (re: claims 25-30).

The applicant argues, with respect to the teachings of Rohr et al. (5340560), that Rohr et al. does not teach “that the precursor material is atomized when it contacts the oxygen and hydrogen” as opposed to being in liquid form when it is fed to the combustion chamber. The claims do not appear to require that the precursor material (the feedstock) be atomized when it contacts the oxygen and hydrogen (the combustion gas) – that is, the applicant implies that the feedstock be atomized *prior to* contact with the combustion gas but this is not in the claim. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the feedstock be atomized prior to contacting the combustion gas) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore though the nozzle of Thor et al. may not atomize the feedstock *prior to* contact with the combustion gas, the nozzle atomizes the feedstock and therefore meets the claim. Since it has not been any further specified how or what way the applicant believe Rohr et al. not to meet the claimed process, the examiner must maintain the position that Rohr et al. does indeed meet the claimed process and must further maintain that Rohr et al. teaches the product of that process as well (re: claims 25-30).

The applicant argues, with respect to the teachings of Hung et al. (6887566), that because Hung et al. discloses that preferably “the aerosol of the cerium oxide precursor solution is injected through the flame or into the hot gas stream located downstream of the flame” that Hung

et al. therefore does not teach “injecting the liquid feedstock into the stream of the combustion gas” as claimed. First, as pointed out above, while the claims require the feedstock to be atomized and to contact the combustion gas, the claims are not specific as to when the steps occur with respect to one another in any precise manner. Second, the aerosol or Hung et al. is still feedstock in liquid form. Perhaps the applicant is confused by the terminology, but both aerosols and atomizations are not gaseous forms but finely dispersed liquids; therefore the aerosol of Hung et al. is still “liquid” feedstock and still meets the claim. The applicant further argues with specific reference to Example 4 of Hung et al. that “the cerium oxide precursor is not a volatizable metal oxide precursor” and therefore does not meet the claim. It is unclear from this whether the applicant is relying solely upon the specific precursor of Example 4 to characterize Hung et al. as teaching non-volatile precursors; if so, it is pointed out that this is merely one preferred embodiment of Hung et al. and the teachings of Hung et al. are not limited to this one embodiment. Furthermore, the applicant has failed to demonstrate why or how they believe the teachings of Hung et al. to be drawn only to non-volatile precursors and not to any volatile precursors; the process of Hung et al. appears to be the same as that which is claimed.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colleen P. Cooke whose telephone number is 571-272-1170. She can normally be reached Mon.-Fri. 9:00 am - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, her supervisor, Stan Silverman can be reached at 571-272-1358. The official fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Colleen P Cooke  
Primary Examiner  
Art Unit 1754